

**ADVANCED LIFE SUPPORT ENGINE COMPANIES IN THE  
U.S. MARINE CORPS BASE QUANTICO  
FIRE & EMERGENCY SERVICES DIVISION**

ADVANCED LEADERSHIP ISSUES IN EMERGENCY MEDICAL SERVICES

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## **ABSTRACT**

The Marine Corps Base (MCB) at Quantico, VA received Advanced Life Support (ALS) emergency medical services from the surrounding counties of Prince William and Stafford, VA. There was no provision for ALS care by either the MCB Quantico Fire & Emergency Services Division or the U.S. Navy Medical Treatment Facility. Due to the on-going population growth at MCB Quantico and in the surrounding counties, the ALS response times exceeded recommended standards. Therefore, the problem prompting this research was the lack of on-base ALS emergency medical services for MCB Quantico.

The purpose of this research was to determine the feasibility of operating ALS engine companies as a means to provide on-base ALS emergency medical services for MCB Quantico. Evaluative research methods were used to answer the following research questions:

1. Does the literature support ALS engine companies as an effective method of providing ALS care?
2. What is the experience of other U.S. military fire departments that have implemented ALS engine companies?
3. Will the fire and emergency services personnel at the MCB Quantico Fire and Emergency Services Division support ALS engine companies?
4. What are the costs associated with implementing ALS engine companies at the MCB Quantico?
5. Will the Command staff at MCB Quantico support an ALS engine company program?

The literature review indicated that ALS engine companies were an effective method of delivering ALS care as long as the system was supported with an effective emergency medical transport system. Two survey instruments determined there were positive outcomes from other

military fire departments that had implemented ALS engine companies and that the MCB Quantico Fire & Emergency Services Division supported the ALS engine company program. Interviews with the MCB Quantico Command staff also indicated support for an ALS engine company program so long as the funding requirements could be supported. The funding requirement was estimated at slightly less than \$80,000 to establish two ALS engine companies.

The research recommended starting the planning process for an ALS engine company program to include a funding plan and an objective analysis of factors affecting an ALS engine company program. Additional recommendations included further evaluation of the emergency medical transport proposal for MCB Quantico, providing ALS training for the existing MCB Quantico Fire & Emergency Services Division personnel, evaluating the initial ALS certification level, adding an EMS Coordinator position and follow-up with the 24 MCB Quantico Fire & Emergency Service Division personnel who did not participate in the survey.

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## INTRODUCTION

In 1991, the U.S. Marine Corps Combat Development Command (MCCDC) Quantico Fire Department (precursor to the Marine Corps Base Quantico Fire & Emergency Services Division) developed a proposal to provide Basic Life Support (BLS) and ALS emergency medical care by staffing U.S. Navy Medical Treatment Facility (MTF) ambulances. The proposal was intended to upgrade the emergency medical service (EMS) delivery at MCB Quantico and increase the effectiveness of the MCCDC Quantico Fire Department.

Unfortunately, the proposal was never approved due to the lack of additional staffing for the ambulances and medic units. However, the lack of on-base ALS care for MCB Quantico remained a concern. Neither the MCB Quantico Fire & Emergency Services Division nor the U.S. Navy MTF provided ALS care and the response times for mutual aid ALS was excessive. Therefore, the problem prompting this research was the lack of on-base ALS care for the MCB Quantico installation.

The ability to obtain additional staffing for ambulances and medic units remains a difficult problem due to the continued downsizing in DoD support appropriations and personnel. However, a few DoD fire departments and many civilian municipal fire departments have implemented ALS engine companies as a means to provide ALS care. The purpose of this research was to determine the feasibility of operating ALS engine companies within the MCB Quantico Fire & Emergency Services Division. Specifically, would the MCB Quantico Fire & Emergency Services Division personnel and the Command staff support an ALS engine company program?

This research used an evaluative research methodology and focused on an internal evaluation of the ALS engine company concept by the members of the MCB Quantico Fire and

Emergency Services Division and the Command staff. One survey instrument was utilized to assess the internal support for ALS engine companies while a second survey instrument was utilized to determine the experiences of other U.S. military fire departments with ALS engine companies. The research addressed the following questions:

1. Does the literature support ALS engine companies as an effective method of providing ALS care?
2. What is the experience of other U.S. military fire departments that have implemented ALS engine companies?
3. Will the fire and emergency services personnel at the MCB Quantico Fire and Emergency Services Division support ALS engine companies?
4. What are the costs associated with implementing ALS engine companies at the MCB Quantico?
5. Will the Command staff at MCB Quantico support an ALS engine company program?

## **BACKGROUND AND SIGNIFICANCE**

In the mid-1980s, the Commandant of the Marine Corps initiated a project to incorporate first responder EMS within the U.S. Marine Corps fire departments. Prior to that time, the U.S. Navy, through their MTFs, was the sole provider of EMS on U.S. Marine Corps installations. The first responder EMS project focused on improving the quality of life on U.S. Marine Corps installations by using emergency medical technician (EMT) trained fire and emergency service personnel to provide non-transport EMS. The program was based on the civilian sector first responder model, which recognized the benefits to the public through a fire service based EMS

program. As a result of the project, the U.S. Marine Corps was the first U.S. military service to adopt a standardized fire service EMT Basic program (Commandant of the Marine Corps, 1986).

By the early 1990's, the first responder EMS program was fully implemented in the U.S. Marine Corps fire departments including the MCCDC Quantico Fire Department. Fire department personnel provided basic life support functions from engine companies and the U.S. Navy MTFs provided the ambulance transport services. However, there was increasing concern about the U.S. Navy MTF's ability to provide an effective ambulance transport program. Additionally, the Commandant of the Marine Corps was pushing U.S. Marine Corps fire departments to expand their services. Such action was deemed necessary to address the continuing decline in fire suppression activities and the cost reductions in U.S. military support functions.

In 1991, at the direction of the MCCDC Quantico Chief of Staff, the MCCDC Quantico Fire Department prepared a proposal to transfer emergency medical response responsibilities to the fire department (Marine Corps Combat Development Command, 1991). The proposal provided four options ranging from BLS ambulance transport to a combination BLS/ALS ambulance system utilizing EMT Cardiac Technicians. None of the options were adopted due to the costs associated with the four options, especially the additional personnel costs. However, for the first time, the proposal recommended upgrading the emergency medical services at MCB Quantico to an ALS level.

The Marine Corps Recruit Depot Parris Island Fire Department was the first U. S. Marine Corps fire department to establish an ALS program in 1993. The fire department was given the ALS service due to a serious incident involving a Marine recruit that was compounded by a delay in the mutual aid ALS service (K.D. Canaday, personal communication, August 12, 1999).

The Marine Corps Air Station Yuma Fire Department initiated the second ALS program in 1999 with an engine company based ALS program. A number of other Marine Corps Fire Department also indicated they are considering starting an ALS program in the future.

In 1997, the DoD Fire and Emergency Services Quality Working Group chartered an Ad Hoc Committee to review EMS within all the military services. The Committee Final Report (U.S. Department of Defense [DoD], 1998a) clearly expressed the concerns with EMS in the U.S. military services. “ The Ad Hoc Committee is of the opinion that EMS at military installations is deficient by most local, regional, state and nationally recommended standards of performance and clinic care. Limited data suggests that significant, preventable untoward outcomes, including unnecessary deaths, have occurred among patients who have engaged military EMS systems, and indicate systemic deficiencies in policy, supervision, training and/or equipment” (p. 3). The Committee found that the U.S. Navy MTFs provided EMS services at the BLS level, whereas virtually all major cities and suburbs provide EMS services at the ALS level. The Committee recommended DoD fire departments as the most suitable agency to provide non-transport EMS and specified an ALS response time performance criterion of nine minutes for 90 percent of all ALS incidents.

The two Virginia counties surrounding MCB Quantico, Prince William and Stafford provide ALS services to the base. Both of the county Fire & Rescue Departments provide ALS care via medic units, however the continuing growth in both counties has placed strains on the ALS system. The estimated ALS response time to MCB Quantico exceeded 16 minutes (R.M. Harvey, personal communication, October 7, 1999). This significantly exceeds the nine minute fractile response time recommended by the DoD EMS Ad Hoc Committee and the eight minute "chain of survival" response time recommended by the American Heart Association (Huisenga,

1999). The ALS response to MCB Quantico was significant, as exemplified by Prince William County's average of 119 ALS transports per year over the last five years (County of Prince William, 1998).

In May of 1999, the MCB Quantico Fire and Emergency Services Division developed another proposal to acquire the ambulance transport service from the U.S. Navy MTF. The proposal presented four options ranging from two fully staffed ambulances to partial cross staffing of one or two ambulances. The proposal only addressed ambulance transport at the BLS level and all options required additional staffing to reduce the impact on the existing engine company personnel. The proposal also recommended adding an EMS Coordinator billet for supervision and training of the EMS program. The proposal was currently under review by the MCB Quantico and U.S. Navy MTF Commands, although serious concerns remained due to the additional staffing requirements.

With two U.S. Marine Corps fire departments already providing ALS services and the possibility for more based on the DoD EMS Ad Hoc Committee recommendations and the significant level of ALS activity at MCB Quantico, an ALS feasibility analysis was warranted for the MCB Quantico Fire & Emergency Services Division. Due to the concerns in obtaining new staffing, an ALS engine company approach was recommended since this approach may not require any increases in operational staffing. However, a critical part of the analysis was the acceptance of the ALS engine company program by the fire and emergency service personnel who provide the services and the MCB Quantico leadership. If the U.S. Marine Corps was to successfully implement an ALS engine company program at MCB Quantico, the program must be accepted by the fire and emergency service personnel and by the base leadership. Without the

support of these two groups, implementing an ALS engine company program will be very difficult.

This paper was prepared to satisfy the applied research requirements associated with the Advanced Leadership Issues in EMS course at the National Fire Academy. The research relates to the Leadership and Quality Management modules of the course, specifically by involving personnel, gaining organizational commitment and meeting the ALS needs of the MCB Quantico customers. This research also relates to the Analysis phase of the Change Management Module (U.S. Fire Administration, 1996). Through a survey of the MCB Quantico fire and emergency service personnel, the research seeks to assess the current organizational conditions for initiating an engine company based ALS program.

The results of the research have significance to other U.S. Marine Corps fire departments in terms of establishing an analysis model for an ALS engine company program. The research also provides the basis for establishing an ALS engine company policy within the U.S. Marine Corps fire departments. Finally, the research may assist other DoD fire departments in determining the feasibility of an ALS engine company program for their installation.

## LITERATURE REVIEW

The literature review for this research focused on three major areas: the experience of other fire departments with ALS engine companies, the critical factors used in evaluating the need for ALS engine companies within the U.S. Marine Corps and the costs associated with ALS engine companies.

### **Fire Department ALS Engine Companies**

Fiero (1990), in his early research on paramedic fire companies, found that ALS engine companies were an invaluable asset in the provision of efficient and coordinated fire and EMS services. Fiero identified numerous benefits to ALS engine companies that resulted in EMS and fire operations complementing rather than conflicting with one another.

The Phoenix, AZ Fire Department implemented ALS engine companies in 1978. Morris (1993) reported that 26 of their 45 engine companies now provide paramedic services as well as two of their ladder companies. Morris cited cost efficiency, minimum staffing, productivity and career ladders for ALS personnel as advantages of the ALS engine company program. Disadvantages identified were start-up costs for training and equipment, out-of-service time, increased training time and differential pay for ALS providers. Morris advised that a key component in an effective ALS engine company program was the ambulance transportation system. Since an engine is not designed to transport patients, the community must rely on the ambulance service to handle the transport duties. Morris concluded that fire departments should not pass up an opportunity for an expanded role in EMS due to public visibility it provides.

Thorp (1993) reported on a number of fire departments and their experience with advanced life support engine companies. He cited the San Diego, CA program in which the fire department improved ALS response times by over two minutes when they initiated an ALS

engine company program in 1990. The Santa Monica, CA program, one of the earliest in the U.S., operated four paramedic engine companies. Keys to this program were the ability to rotate crews, which reduced paramedic burnout and the proximity of the local hospital. In Fayette County, GA, all new fire fighters must be certified as ALS providers within their first year of employment and receive a pay differential when they are certified as a paramedic. In the Orlando, FL Fire Department, the use of the ALS engine companies has stabilized the staffing at a minimum of four personnel due to the dual function of the company. The use of the ALS engine companies also reduced the need for additional rescue units, which saved the city substantial resources.

In 1996, Dittmar addressed fire departments that utilized ALS engine companies. One of the key advantages cited was the positive link between EMS and the fire department, especially from the public point of view. Additionally, fire fighter EMS skills usually improve dramatically when working with their fellow ALS providers. Excessive response times for transport ambulances and the roles of paramedics in fire suppression operations were cited as areas for concern. "When EMS personnel are restricted to a few fire fighting functions, departments must act to prevent them from losing their fire fighting skills by rotating them in suppression roles or providing in-service training on a regular basis" (p. 122).

In his research of paramedic/ALS engine companies for the Prince George's County, MD Fire Department, Fletcher (1997) found that increased overall efficiency and increased customer service visibility were two key benefits of the program. "Engine companies responding as a primary ALS provider will have much more face-to-face contact with citizens as opposed to the informal spectators view of operations they encounter during suppression operations" (p. 13). Fletcher also found that ALS engines were the least expensive means of rapidly delivering ALS

care, decrease the average response time per call when compared to transport units and improve the productivity of the responding crews since they were cross-utilized everyday. Concerns raised by Fletcher included start-up costs and time, additional pay for dual role personnel, medical director standard of care requirements and poor attitudes towards EMS exhibited by suppression oriented personnel. Fletcher concluded that a considerable amount of time would be necessary to overcome the concerns, however the ALS engine concept provided the necessary tools for an adaptive solution, rather than a reactionary one.

Janis's research in 1997 for the West Covina, CA Fire Department found that paramedic engine companies decreased ALS response times by two minutes and increased the efficiency of the engine companies by firmly establishing four-person engine company staffing. During his survey of all the fire departments in Orange County, CA, Janis found uniform support for paramedic engine companies. The main reasons given for the support were reduced ALS response times and cost efficiency.

Stinnette (1994) evaluated the ALS engine company concept as a way to meet the Fairfax County, VA goal of providing ALS care to 90 percent of the county population within six minutes. Without the ALS engines, the Fairfax County Fire and Rescue Department was meeting the ALS goal less than 50 percent of the time. Stinnette found that ALS engines would substantially reduce ALS response times, increase productivity, increase the level of staffing for fire apparatus and provide greater flexibility in providing service. Disadvantages cited were initial start-up costs and the possibility of a missed fire call while providing EMS care, however Stinnette indicated the benefits of ALS engines far outweighed the disadvantages.

Beck (1995) evaluated ALS engine companies as an alternative to a single delivery paramedic squad in Roseville, CA. He found the ALS engine companies placed paramedics on

the scene within a five minutes over 91 percent of the time as compared to a 76 percent five-minute response rate for the squad based delivery system. Additionally, paramedics initiated care in 64 percent of patients, a 100 percent increase from the paramedic squads.

In evaluating the ALS engine company program for Somerset, MA, Rivard (1996) found that ALS response times and patient care were the best arguments for ALS engines. "Don't try to upgrade your services for the sole purpose of job security... Remember why you're in this business to begin with: to protect life and property. Stay focused on quality patient care and providing quick responses" (p. 54).

Rubin (1997) reported on the Dothan, AL program to place eight paramedic engines in service to meet the ALS response goal of six minutes for 95 percent of all ALS calls. The six-minute goal was established based on the American Heart Association model of delivering medical intervention within four to six minutes to prevent brain damage. Rubin identified the proper utilization of fire and emergency service personnel as the real benefit of ALS engines. "By letting capable and willing paramedics participate in fire duty and the reverse for fire fighters answering medical calls, the city saves a small fortune" (p. 73). Rubin also dismissed the claim that ALS engines were too busy, noting that Dothan engine companies were committed to emergency incidents 3 to 5 percent of the time, which is about the national average.

The previous studies and reports on fire department based ALS engine companies influenced this research by indicating that a substantial number of fire departments outside the U.S. military services were providing ALS services utilizing an engine company approach. The studies and reports indicated positive outcomes from almost all the ALS engine company programs reviewed. The outcomes included decreased ALS response times, increased staffing for ALS engine companies, increased productivity of the engine company crews and increased

public visibility. The literature did identify the ambulance transport system as a key component of an overall effective ALS engine company system and the cost associated with ALS engine companies was identified as a concern in many reports. However, in almost all cases reviewed, the cost concerns did not appear to prevent implementation or expansion of the ALS engine company services. As stated in the International Association of Fire Chiefs (circa 1994) report on EMS management issues, the use of ALS engine companies was increasing and provided an effective method of integrating fire and EMS services. "Fire apparatus first response to medical emergencies should be strengthened by enhancing the capabilities of first responders. The current trend toward ALS engines is on the rise and in many areas appears to be the future of fire service EMS.... This is the kind of flexibility that gives fire departments advantage over potential competitors" (p. 4).

#### **ALS Engine Companies in the U.S. Marine Corps**

Telephone interviews were conducted with four U.S. Marine Corps Fire Chiefs in order to review the critical factors they used in evaluating the need for ALS engine companies. Two of the Fire Chiefs have experience with ALS engine company services and their departments were included in the U.S. military ALS survey. The other two Fire Chiefs were in the process of evaluating an ALS engine company program for their installation.

C.B. Duffy (personal communication, September 27, 1999) stated that decreasing the ALS response times and improving the emergency medical care at the U.S. Marine Corps Air Station (MCAS) Yuma were the principal factors in starting an ALS engine company program. With the extensive flight operations and the heavy aircraft maintenance that takes place at MCAS Yuma, Duffy felt it was important to have ALS capability on site as quickly as possible.

He also stated that he needed the paramedic fire fighters to improve the EMS skills of all his fire and emergency service personnel.

K.D. Canaday (personal communication, September 27, 1999) stated that the high level of ALS activity due to recruit training was the main reason for implementing an ALS engine company program at the U.S. Marine Corps Recruit Depot (MCRD), Parris Island. Although the MCRD Parris Island Fire Department operates two ALS transport units, Canaday often found that both units were committed when additional EMS calls were received. Canaday stated they increased the ALS capability very efficiently by utilizing the ALS engine company approach.

R.B. Wyman (personal communication, September 28, 1999) stated that improving the ALS response times for the heavy industrial maintenance center and more efficient use of his personnel were the critical reasons for pursuing ALS engine companies at the U.S. Marine Corps Logistics Base (MCLB) Barstow. Wyman stated the private ambulance ALS provider response times easily exceeded ten minutes, which he believed was not acceptable for the potential trauma and cardiac emergencies at MCLB Barstow. Wyman also stated it was important to provide the same level care on the base as the ALS care provided outside the base.

C.E. Methvin (personal communication, September 30, 1999) advised they considered a paramedic engine company program for the Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, however they were concerned the Navy MTF and the local private ambulance company could not provide an efficient transport capability to support the program. Methvin further advised their transport times were generally very rapid since there was an U.S. Navy hospital with an emergency room on the installation. Therefore, the fire department was pursuing an ALS transport program in lieu of the ALS engine company program. Methvin felt it was important to provide ALS services since it was the industry

standard and there was Command support for upgrading the emergency services under their installation reform initiatives.

The interviews with the four U.S. Marine Corps Fire Chiefs influenced this research by indicating the U.S. Marine Corps was generally pursuing ALS engine companies for the same reasons as that found in the municipal fire departments. There was consistency in such areas as improving ALS response times and improving the emergency medical service capability to the installation. Both Wyman (personal communication, September 28, 1999) and Methvin (personal communication, September 30, 1999) also felt it was important to provide the same level of care on the base as that found in the local community. Methvin reaffirmed the important role of the ambulance transport system in an ALS engine company program. Without an efficient ambulance transport system, the benefit of an ALS engine program can be significantly reduced. Both Dittmar (1996) and Morris (1993) previously highlighted the importance of the ambulance transport system.

### **ALS Engine Company Costs**

The U.S. Fire Administration's report on Implementation of EMS in the Fire Service (1997) stated that front loaded ALS engine companies allow early ALS intervention and increase personnel efficiency since they are filling multiple roles. However, one of the key disadvantages cited was the higher cost for training, certification, recertification, equipment and employee replacement costs. "Policy makers must assess whether the added capabilities offered by placing paramedics on fire suppression apparatus offset the additional cost of doing so" (p. 43).

Janis (1997) determined that ALS engine companies would increase the West Covina, CA Fire Department personnel budget by approximately \$120,000 to upgrade 12 to 15 fire fighters to the paramedic level. He stated the personnel upgrade costs would be partially offset

by the elimination of two paramedic squads. Due to the decreased ALS response times, Janis recommend ALS engine companies as the most cost effective ALS solution for the West Covina Fire Department.

Beck (1995), in his research for the Roseville, CA Fire Department, found that paramedic engine companies were the least costly of the ALS options considered. Beck estimated the first year cost of ALS engines at \$165,000 for four ALS engines. The cost included \$75,000 to provide ALS supplies for the four engines and \$90,000 in overtime costs for the existing paramedic fire fighters to staff the engine companies. Beck determined there was a cost savings of \$230,000 in the first year when comparing the ALS engine companies to paramedic squads.

Fletcher (1997) indicated that time rather than dollars were the critical cost issue in starting a paramedic engine company program. The major time factor was the 18-month commitment for fire fighting personnel to obtain paramedic certification in Prince George's County, MD. Fletcher did recommended training existing fire department personnel to the paramedic level as a means to increase the productivity of the personnel. Equipment costs were estimated at \$20,000 per engine company and a 5 percent increase in compensation was utilized for the dual role personnel. Fletcher also advocated ALS engines as the most effective ALS delivery system.

Mestas (1993) found the cost to upgrade a Miami, FL Fire Department engine company to ALS capability at less than \$50,000, which included monitors, defibrillators, drug boxes and other advanced equipment. While no specific cost figures were provided, Mestas also identified the additional cost of training fire department personnel as full paramedics.

Rivard (1996) noted that training current employees to the paramedic level took approximately one year in Somerset, MA. As a result, Rivard recommended hiring new

personnel with a paramedic background as a way to offset the start-up costs. Rivard estimated the equipment start-up costs at \$40,000 per engine company, which the local hospital funded.

The Dothan, AL Fire Department estimated their ALS engine company start-up costs at \$15,000 for ALS equipment and \$20,000 to convert their existing engines to ALS engines (Rubin, 1997). The department recommended installing large, lockable ALS equipment boxes in the crew cab of their engines. Rubin also noted their existing fire fighter paramedics received a 9 percent differential in pay from the BLS fire fighters.

Intartaglio (1998), in his research for the South Trail, FL Fire Department, identified minimum start-up costs of \$20,000 for an ALS engine company program, depending on the individual department circumstances. Intartaglio also noted that selling the program to employees, additional training costs and response arrangements with other agencies were hidden costs that must be considered.

In 1991, the International Association of Fire Chiefs surveyed 207 fire departments on specific EMS management issues. Part of the survey addressed fiscal concerns associated with ALS engine companies. Of the 21 respondents who answered the fiscal question, an average cost of \$40,136 was identified as the cost increase associated with staffing an ALS engine company as opposed to a non-ALS engine company.

In 1998, Mothershead prepared a report for the Naval Hospital in Beaufort, SC that evaluated the EMS system for the U.S. Marine Corps facilities in the Beaufort area. In evaluating the EMS role of the MCAS Beaufort Fire Department, Mothershead recommended eventual upgrading to the EMT Intermediate level as a cost-effective program. “Given the total annual responses at that installation, one would not expect a significant enough number of true life threat emergencies to support skills sustainment at the paramedic level, without intense

continuing education and training. Personnel trained at the level of the new (proposed) EMT Intermediate program as developed for USDOT/NHTSA should be able to handle over 95 percent of all emergencies encountered, and would certainly be more cost effective to institute than paramedic level services” (p. 8).

The literature information on ALS engine company costs influenced this research by indicating that an ALS engine company approach was generally regarded as the most effective approach of implementing ALS within fire departments. Almost all the fire departments reviewed agreed the ALS engine companies saved significant funds when evaluated against other ALS delivery approaches. Equipment costs varied from approximately \$20,000 to \$50,000 per engine company and in many cases were provided or subsidized by the local hospital. However, there was substantial variance in the personnel costs. Many departments provided a pay differential for the dual role personnel and there were different approaches identified in obtaining the ALS training. The report by Mothershead (1998) was significant in recommending that ALS care at the intermediate level may be the most effective approach, depending on the number and severity of ALS responses. A similar recommendation for the MCB Quantico Fire & Emergency Services Division would substantially reduce the training time and costs necessary to implement an ALS program.

## **PROCEDURES**

Procedures used in this research addressed portions of the Analysis phase of the Change Management Model (U.S. Fire Administration, 1996), specifically the assessment of the internal organizational conditions and the potential destabilizing forces associated with an ALS engine company program.

Procedures began with a literature review at the Learning Resource Center at the National Emergency Training Center in April 1999. Additional literature reviews were conducted at the International Association of Fire Chiefs Management Information Center, the International Association of Fire Fighters EMS Publications Center and the Headquarters U.S. Marine Corps Fire Protection Programs library and files. These literature reviews took place between April 1999 and September 1999.

The literature review focused on three major areas. The first was a search for authoritative sources that addressed fire department ALS engine companies. A number of studies and articles were identified that addressed ALS engine companies in the municipal sector, however no sources were found on ALS engine companies in the U.S. military services. The second search attempted to identify the positive and negative factors that affected fire department ALS engine companies and the last search attempted to identify the costs associated with an ALS engine company program.

Fire Chief Charles B. Duffy of the MCAS Yuma Fire Department and Fire Chief Kelvin D. Canaday of the MCRD Parris Island Fire Department were interviewed by telephone on September 27, 1999. Fire Chief Robert B. Wyman of the MCLB Barstow Fire Department was interviewed by telephone on September 28, 1999 and Fire Chief Charles E. Methvin of the MCAGCC Twentynine Palms Fire Department was interviewed by telephone on September 30,

1999. The Fire Chiefs were interviewed to determine the factors and issues they evaluated in assessing the need for ALS engine companies at four U.S. Marine Corps installations. The interviews also were used to determine if there was consistency between the municipal fire departments ALS engine company program and the programs in the U.S. Marine Corps.

Mr. Ray M. Harvey, MCB Quantico Fire & Emergency Services Division Driver /Operator and EMS Committee Chairman, was interviewed by electronic mail on October 7, 1999. He provided information on the mutual aid ALS response times, ALS training and equipment requirements, ALS engine company staffing needs and the ALS engine company cost information.

Colonel Calvin L. Scovel, Security Battalion Commander at MCB Quantico was interviewed by electronic mail on October 4, 1999. Colonel Scovel is the senior military commander in charge of emergency services at MCB Quantico and has Command authority over the Fire and Emergency Services Division. Colonel Scovel provided the Command staff perspective on an ALS engine company program for MCB Quantico.

### **Description of Surveys**

A survey instrument titled “Advanced Life Support Engine Company Questionnaire” (see Appendix A), was provided to all the fire and emergency service personnel at MCB Quantico. The purpose of this questionnaire was to evaluate the ALS engine company program from the perspective of the personnel who would provide the service. The questionnaire posed a number of specific questions including rank and experience in the fire department, current EMS training, evaluation of the current EMS system, support for ALS engine companies and willingness to provide ALS services if an ALS engine company program was implemented. For fire and emergency service personnel who indicated they would support an ALS engine company

program, the questionnaire attempted to determine the reasons for the support. Conversely, for personnel who indicated they would not support an ALS engine company program, the questionnaire attempted to determine reasons for the lack of support.

The questionnaire to the MCB Quantico Fire and Emergency Services Division personnel was reviewed by the MCB Quantico Fire Chief and the EMS Committee Chairman. Based on the review, a few revisions were made to the questionnaire prior to the actual distribution. The questionnaire was provided to all members of the Fire and Emergency Services Division and the Fire Chief collected the completed questionnaires. A total of 58 questionnaires were distributed and 34 were completed and returned for a response rate of 59 percent. Response to the questionnaire was voluntary and a significant percentage (41 percent) of fire and emergency service personnel did not respond. Table 1 provides demographic information on the fire and emergency services personnel who responded to the questionnaire and Appendix C provides the respondent comments. The data from the questionnaire was compiled and entered into a relational database (Microsoft Access 97). The results were tabulated and used to help answer the research questions.

**TABLE 1**Frequency Distribution of Questionnaire Respondents by Rank, Experience and EMS Training

Rank	N – 34	%
Chief Officer	2	5.9
Inspector	2	5.9
Lead Fire Fighter	7	20.6
Driver/Operator	6	17.6
Fire Fighter	17	50.0
Total	34	100

  

Years of Experience	N – 34	%
< 1	0	0
1-5	2	5.9
5-10	8	23.5
10-20	13	38.2
>20	11	32.4
Total	34	100

  

EMS Training	N - 34	%
None	1	2.9
First Responder	1	2.9
EMT	31	91.2
Cardiac Technician	1	2.9
Paramedic	0	0
Total	34	100

A second survey instrument titled "Advanced Life Support (ALS) Questionnaire" (see Appendix B), was developed to assess the experiences of other U.S. military fire departments who have implemented ALS engine company programs. The questionnaire posed specific questions on the scope and size of the fire department's ALS program, the reasons for starting an ALS program, the positive and negative outcomes of the program and any limitations to the ALS program. The Fire and Emergency Service Program Managers in the other U.S. military services were asked to identify appropriate fire departments to receive the questionnaire and the questionnaire was submitted to the fire departments by electronic mail. A total of 11 fire departments were provided the questionnaire and six completed and returned the questionnaire for a response rate of 55 percent. Several of the fire departments that did not complete the questionnaire indicated they currently employed ALS personnel, but were not providing ALS services for various reasons. The results from the six completed questionnaires were used in answering the research question on the experience of U.S. military fire departments that have implemented ALS engine companies. Demographic information on the fire departments that completed the questionnaire is provided in Appendix D.

### **Setting**

The MCB Quantico Fire and Emergency Services Division is a career fire department of 61 personnel (there were three vacancies during the survey) protecting the "Crossroads of the Marine Corps", the cradle of the Marine Corps development, training, education and doctrine programs. The department operates four engine companies and one truck company from three fire stations. The department also cross-staffs one rescue vehicle and several wildland fire vehicles. MCB Quantico is home to several military and tenant organizations including the Marine Corps Combat Development Command, Headquarters Marine Corps Manpower Center,

Federal Bureau of Investigation Training Academy, Drug Enforcement Agency Laboratory, Marine Corps Officers Candidate School and the Marine Corps Basic School. The base proper also includes the Quantico Marine Corps Air Facility, which is home to Marine Helicopter Squadron 1 (HMX-1). HMX-1 is best known for its executive helicopter support to the President and visiting heads of state. MCB Quantico is located approximately 30 miles south of Washington, DC, covers over 61,000 acres of land and serves a base population in excess of 12,000 military and civilian personnel.

### **Limitations and Assumptions**

The research was affected by a number of limitations and assumptions. The first limitation was the high percentage of MCB Quantico Fire and Emergency Service Division personnel who did not respond to the questionnaire. Since the questionnaire was voluntary and there was not sufficient time for follow-up, it was not possible to determine the reasons for a 41 percent non-response rate. However, it will be important to try and capture the input of this group before moving forward with an ALS engine company program.

The second limitation was that only six U.S. military fire departments were identified as operating an ALS engine company program. While some departments were probably not notified or chose not to respond, the very small number indicates that few U.S. military fire departments currently provide ALS engine company services. This may be due to the fact that the fire departments were not the primary provider of EMS services. The military MTFs were still the primary provider of the EMS services on U.S. military installations.

The research assumed that the survey respondents understood the questions, answered all questions truthfully and understood the characteristics of an ALS engine company program.

While there was no data to suggest the assumptions were improper, the assumptions could not be confirmed.

The “Advanced Life Support Engine Company Questionnaire” survey instrument was incomplete by failing to expand the respondents yes or no answer to Question 9. As a result, the research could not draw specific conclusions on the reasons behind the respondent’s answer to the question.

Finally, the research was limited in that it only addressed subjective factors from the MCB Quantico Fire and Emergency Service Division personnel and the Command staff regarding an ALS engine company program. A full evaluation would require analysis of the objective factors such as call volumes, fractile response times, medical direction, mutual aid agreements and non-emergency workloads.

### **Definitions**

For the purposes of this research, the following definitions apply:

Advanced Life Support (ALS): Medically accepted life sustaining, invasive or noninvasive procedures provided under the direct or indirect control of a physician or other authorized personnel (DoD, 1998b). Procedures include advanced airway management including intubation, advanced cardiac monitoring, manual defibrillation, establishment and maintenance of intravenous access and drug therapy.

ALS Engine Company: A compliment of fire and emergency service personnel staffing a fire department pumper with at least one ALS certified provider. In the U.S. Marine Corps, a fully staffed engine company consists of four personnel assigned to the pumper.

Basic Life Support (BLS): Out-of-hospital emergency care that includes patient assessment, basic airway management, oxygen therapy, stabilization of spinal, musculo-skeletal,

soft tissue, bleeding and shock injuries, stabilization and intervention for sudden illness, poisoning and heat/cold injuries, childbirth care, cardiopulmonary resuscitation and automatic defibrillator capability.

Emergency Medical Services (EMS): The provision of patient care services to persons remote from a medical treatment facility, with real or perceived conditions requiring immediate assistance due to illness or injury, including access, response, rescue, out-of-hospital and hospital emergency treatment and transportation (DoD, 1998b).

Emergency Medical Technician (EMT) – Basic: A person who has successfully completed the U.S. Department of Transportation, National Highway Traffic Safety Administration or equivalent state course of training, who may provide emergency medical care and may transport the sick and injured (DoD, 1998b). In general, these technicians may deliver non-invasive care, operate automatic defibrillators and assist patients in taking their own medication.

Emergency Medical Technician (EMT) – Cardiac Technician: A person who has successfully completed the Commonwealth of Virginia course of training and been a practicing EMT Basic for at least one year. In general, these ALS technicians may deliver all care permitted under the EMT Basic curriculum and may provide cardiac monitoring, intravenous therapy, intubate patients and administer cardiac related medications.

Emergency Medical Technician (EMT) – Intermediate: A person who has successfully completed the U.S. Department of Transportation, National Highway Traffic Safety Administration or equivalent state course of training, who may provide emergency medical care and may transport the sick and injured patients (DoD, 1998b). In general, these ALS technicians

may deliver all care permitted under the EMT Basic curriculum and may provide intravenous therapy, administer additional medications and intubate patients.

Medical Treatment Facility (MTF): A fixed, physical structure, approved by regulatory authority, staffed and equipped to provide diagnosis and treatment of medical conditions (DoD, 1998b).

Paramedic: A person who has successfully completed the U.S. Department of Transportation, National Highway Traffic Safety Administration or equivalent state course of training, who may provide emergency medical care and may transport the sick and injured. In general, these ALS technicians deliver a wide scope of services including intubation, manual defibrillation, intravenous therapy and medications, chest decompression and other invasive treatments. (DoD, 1998b)

## **RESULTS**

1. Does the literature support ALS engine companies as an effective method of providing ALS care?

The literature review indicated strong support for ALS engine companies within the municipal sector. All the studies and reports reviewed indicated positive outcomes for fire department ALS engine companies except for the Madison, WI program. Thorp (1993) reported the major problem with ALS engine companies in Madison was they were located too close to the ALS ambulance companies and thus the paramedics had little rapport with patients. A number of reports (Fiero, 1990; International Association of Fire Chiefs, circa 1994; Morris, 1993; Rubin, 1997; Stinnette, 1994) recommended fire department ALS engine companies as the most efficient method to deliver ALS services. The reports were best summarized by Stinnette's

recommendation to executive fire officers considering ALS engines. "The research indicates that paramedic engine companies are a viable means of providing ALS service... Fire departments that do not provide this level of service are missing an opportunity to better serve their citizens and increase their overall worth in the community." (p. i).

Although no studies or reports were located on ALS engine companies within the military services, the interviews with the U.S. Marine Corps Fire Chiefs did indicate support for ALS engine companies as an effective method to deliver ALS care. Fire Chiefs Duffy (personal communication, September 27, 1999) and Wyman (personal communication, September 28, 1999) specifically addressed improving the ALS care on their installation as a primary reason for implementing ALS engine companies. The interview with Fire Chief Methvin (personal communication, September 30, 1999) highlighted the importance of an effective ambulance transport system for fire departments that operate ALS engines. This was consistent with the findings by Dittmar (1996) and Morris (1993).

2. What is the experience of other U.S. military fire departments that have implemented ALS engine companies?

Table 2 provides the data from the six military fire departments surveyed that operated ALS engine companies. All six departments indicated that the ALS program provided positive benefits, especially in the areas of improved EMS capabilities (100 percent), improved ALS response times (100 percent), increased fire department services (83.3 percent) and improved Command relationships (83.3 percent). Three of the respondents (50 percent) indicated increased compensation for the ALS providers and two respondents (33.3 percent) indicated increased promotional opportunities and increased morale were positive benefits of the ALS program. The data indicated the most common reasons for starting the ALS engine company program were to

improve the EMS capabilities (100 percent), improve the ALS response times (100 percent) and to increase fire department services (66.7 percent). Interestingly, the Command authority did not direct implementation in any of the fire departments surveyed and none of the departments viewed increasing compensation to the ALS providers as a reason to start the program. Only one department (16.7 percent) identified increased promotional opportunities for ALS providers in their rationale for starting ALS engine companies.

The major concerns expressed with the ALS engine companies were increased fire department costs (66.7 percent), increased training and certification requirements (83.3 percent) and increased call volumes and on-scene times (66.7 percent). There were no concerns expressed with compromising other missions, transport capability, lack of support by fire department personnel, union/labor issues or medical control problems. The other concerns expressed by two of the fire departments related to the increased time spent on EMS issues and the reduction of engine company staffing to staff the ambulances.

**TABLE 2**

Frequency Distribution of U.S. Military Fire Department Questionnaire Respondents Concerning  
Fire Department ALS Engine Company Program

Reasons for Starting ALS Engine Company Program	N – 6	%
Improve EMS Capabilities	6	100
Improve ALS Response Times	6	100
Increase Fire Department Services	4	66.7
Directed by Command Authority	0	0
Increase Compensation for ALS Providers	0	0
Increase Promotion Opportunities for ALS Providers	1	16.7
Other	3	50.0
Has ALS Program Provided Positive Benefit?	N – 6	%
Yes	6	100
No	0	0
Positive Benefits of ALS Engine Company Program	N – 6	%
Improved EMS Capabilities	6	100
Improved ALS Response Times	6	100
Increased Fire Department Services	5	83.3
Improved Command Relationships	5	83.3
Increased Compensation for ALS Providers	3	50
Increased Promotion Opportunities for ALS Providers	2	33.3
Increased Morale of Fire Department Personnel	2	33.3
Other	1	16.7

**TABLE 2**

Frequency Distribution of U.S. Military Fire Department Questionnaire Respondents Concerning  
Fire Department ALS Engine Company Program

Concerns with ALS Engine Company Program	N – 6	%
Compromised Other Fire Department Missions	0	0
Increased Fire Department Costs	4	66.7
Increased Training & Certification Requirements	5	83.3
Increased Call Volume & On-scene Times	4	66.7
No Efficient Transport Capability	0	0
Lack of Support by Fire Department Personnel	0	0
Union/labor Issues	0	0
Medical Control Problems	0	0
Other	2	33.3

3. Will the fire and emergency services personnel at the MCB Quantico Fire and Emergency Services Division support ALS engine companies?

Tables 3, 4, 5 and 6 provide the data from the MCB Quantico Fire & Emergency Services Division personnel concerning ALS engine companies. Table 3 indicates the acceptance of the existing EMS system by the respondent demographics of rank, experience and EMS training. Of the 33 respondents, 25 (73.5 percent) indicated the current system was not acceptable and 8 (23.6) indicated the existing system was acceptable. Table 4 provides the data on whether or not the MCB Quantico Fire & Emergency Services Division should provide ALS services, also by the respondent demographics of rank, experience and EMS training. Of the 33 respondents, 29 (85.2 percent) indicated the MCB Quantico Fire & Emergency Services Division should provide ALS services and 4 (11.8 percent) indicated they should not. All four of the respondents who did not believe they should provide ALS services came from the Fire Fighter rank.

Table 5 indicates the support for ALS engine companies by the MCB Quantico Fire & Emergency Services Division and the reasons for supporting or not supporting ALS engine companies. Of the 33 respondents, 27 (79.4 percent) supported ALS engine companies and 6 (17.6 percent) did not. The main reasons identified for supporting the ALS engine companies were to improve EMS capabilities (76.5 percent), improve ALS response times (73.5 percent), increase fire department services (64.7 percent), increase promotional opportunities for ALS providers (61.8 percent), increase compensation for ALS providers (58.8) and to increase EMS skills (50 percent). The main reasons identified for not supporting the ALS engine companies were compromises to other fire department missions (11.8 percent) and no efficient ambulance transport capability (11.8 percent). Three respondents (8.8 percent) identified increasing costs

and 3 respondents (8.8%) indicated increases in training and certification requirements as reasons for not supporting ALS engine companies.

Table 6 shows the willingness of the MCB Quantico Fire & Emergency Services Division to undergo the necessary training and provide ALS services if an ALS engine company program was approved. Twenty (58.8 percent) respondents indicated they would undergo the training and provide ALS services and 10 (29.4 percent) indicated they would not. In terms of rank, the data indicated the Fire Fighter rank (10 of 14 respondents) and the Driver Operator rank (5 of 6 respondents) had the highest percentage of respondents willing to undergo training and provide ALS services. In terms of experience, the data indicated unanimous willingness to undergo training and provide ALS services through 10 years of experience (9 of 9 respondents) and a 66.7 percent (8 of 12 respondents) willingness for 10 through 20 years of experience. For personnel with more than 20 years of experience, just 50 percent (3 of 6 respondents) were willing to undergo ALS training and provide ALS services.

**TABLE 3**

Relationship between MCB Quantico Fire & Emergency Service Division Acceptance of Existing EMS System and Respondent Demographics of Rank Experience and EMS Training

Existing EMS Acceptable	Yes	%	No	%	Total	%
<b>Rank</b>						
Chief Officer	0	0	2	5.9	2	5.9
Inspector	0	0	1	2.9	1	2.9
Lead Fire Fighter	2	5.9	5	14.7	7	20.6
Driver/Operator	2	5.9	4	11.8	6	17.6
Fire Fighter	4	11.8	13	38.2	17	50.0
Total	8	23.6	25	73.5	33	97.0
<b>Years of Experience</b>						
<1	0	0	0	0	0	0
1-5	0	0	2	5.9	2	5.9
5-10	2	5.9	6	17.6	8	23.5
10-20	4	11.8	9	26.4	13	38.2
>20	2	5.9	8	23.5	10	29.4
Total	8	23.6	25	73.4	33	97.0
<b>EMS Training</b>						
EMT	8	23.5	22	64.7	30	88.2
Other	0	0	3	8.8	3	8.8
Total	8	23.5	25	73.5	33	97.0

**TABLE 4**Relationship between MCB Quantico Fire & Emergency Service Division Providing ALSServices and Respondent Demographics of Rank Experience and EMS Training

Provide ALS Services	Yes	%	No	%	Total	%
Rank						
Chief Officer	1	2.9	0	0	1	2.9
Inspector	2	5.9	0	0	2	5.9
Lead Fire Fighter	7	20.6	0	0	7	20.6
Driver/Operator	6	17.6	0	0	6	17.6
Fire Fighter	13	38.2	4	11.8	17	50.0
Total	29	85.2	4	11.8	33	97.0
Years of Experience						
<1	0	0	0	0	0	0
1-5	2	5.9	0	0	2	5.9
5-10	6	17.6	2	5.9	8	23.5
10-20	11	32.3	2	5.9	13	38.2
>20	10	29.4	0	0	10	29.4
Total	29	85.2	4	11.8	33	97.0
EMS Training						
EMT	26	76.4	4	11.8	30	88.2
Other	3	8.8	0	0	3	8.8
Total	29	85.2	4	11.8	33	97.0

**TABLE 5**

Frequency Distribution of MCB Quantico Fire & Emergency Service Division Questionnaire

Respondents Concerning Support for ALS Engine Companies

Support ALS Engine Companies	N - 34	%
Yes	27	79.4
No	6	17.6
Total	33	97
Reasons for Supporting ALS Engine Companies	N – 34	%
Improve EMS Capabilities	26	76.5
Improve ALS Response Times	25	73.5
Increase Fire Department Services	22	64.7
Increase Compensation	20	58.8
Increase Promotional Opportunities	21	61.8
Increase EMS Skills	17	50.0
Other	6	17.6
Reasons for Not Supporting ALS Engine Companies	N – 34	%
Existing EMS Capabilities Acceptable	1	2.9
Compromise Other Fire Department Missions	4	11.8
Increase Fire Department Costs	3	8.8
Increase Training/Certification Requirements	3	8.8
Increase Call Volume & On-Scene Times	2	5.9
Not Fire Department's Responsibility	1	2.9
No Efficient Transport Capability	4	11.8
Other	1	2.9

**TABLE 6**

Relationship between MCB Quantico Fire & Emergency Service Division Willingness to  
Provide ALS Services and Respondent Demographics of Rank Experience and EMS Training

Provide ALS Services	Yes	%	No	%	Total	%
<b>Rank</b>						
Chief Officer	0	0	1	2.9	1	2.9
Inspector	1	2.9	1	2.9	2	5.9
Lead Fire Fighter	4	11.8	3	8.8	7	20.6
Driver/Operator	5	14.7	1	2.9	6	17.6
Fire Fighter	10	29.4	4	11.8	14	41.2
Total	20	58.8	10	29.4	30	88.2
<b>Years of Experience</b>						
<1	0	0	0	0	0	0
1-5	2	5.9	0	0	2	5.9
5-10	7	20.6	0	0	7	20.6
10-20	8	23.5	4	11.8	12	35.3
>20	3	8.8	6	17.6	9	26.4
Total	20	58.8	10	29.4	30	88.2
<b>EMS Training</b>						
EMT	19	55.9	9	26.4	28	82.3
Other	1	2.9	1	2.9	2	5.9
Total	20	58.8	10	29.4	30	88.2

4. What are the costs associated with implementing ALS engine companies at the MCB Quantico?

R.M. Harvey (personal communication, October 7, 1999) provided information on the specific costs required in upgrading an engine company to ALS status, based on the Commonwealth of Virginia requirements. The cost for equipment slightly exceeded \$12,000 and included a heart monitor/defibrillator, esophageal airways, laryngoscope kit and gastric lavage equipment. Other medical equipment needed to operate the ALS engine companies would be provided by the Navy MTF or the County medical control hospital. Harvey recommended upgrading two engine companies, one on the eastern area of the base and one on the western area. Thus, the total estimated equipment cost was \$24,000. ALS training equipment included an airway intubation trainer, intravenous injection trainer and cardiac monitor trainer with an estimated cost of \$1,700. Total equipment cost was estimated at \$25,700.

The paramedic training and certification cost was estimated at \$2000 per student including laboratory fees. Harvey estimated they would need at least six ALS providers to provide coverage on their two-shift rotation, so the estimated training cost is \$12,000. Fire fighters with ALS certifications have generally been upgraded one full General Schedule grade, which was estimated as a \$6,700 increase per year with benefits included. Total ALS training, certification and personnel upgrade costs for six fire fighters were estimated at \$ 52,200.

The total cost to upgrade two engine companies to ALS status was estimated at \$77,900 in the first year, or slightly less than \$40,000 per engine company. This estimate was based on upgrading six existing fire fighters at the MCB Quantico Fire & Emergency Services Division to ALS status.

5. Will the Command staff at MCB Quantico support an ALS engine company program?

Colonel C.L. Scovel (personal communication, October 4, 1999) indicated the MCB Quantico Command was willing to support an ALS engine company program. He was concerned with the current ALS response times from the surrounding counties and that the current growth in the surrounding counties will further increase their response times. Additionally, with the growth at MCB Quantico, there was increasing risk of a fatality or serious injury that could be attributable to a delay in ALS response. Colonel Scovel stated the fire department was already the first responder for almost every emergency on the base and with proper training and equipment, MCB Quantico Fire & Emergency Division personnel could assume the ALS services.

Colonel Scovel's major concern was the funding availability to support the ALS engine companies. He was very concerned about funding impact if the fire department emergency medical transport proposal currently under review and an ALS engine company proposal were approved at the same time. He feels the base Commander may not support such a large funding impact for both proposals. Colonel Scovel recommended keeping the Command informed and providing funding plans and alternatives as the best methods to address the funding concerns.

## **DISCUSSION**

The original purpose of this research was to determine if there was support for ALS engine companies by the MCB Quantico Fire & Emergency Services Division personnel and the MCB Quantico Command staff. The results indicated there was significant support for ALS engine companies by both groups. The MCB Quantico Fire & Emergency Services Division survey results indicated more 73 percent of the respondents felt the existing EMS system was unacceptable, more 85 percent felt the fire department should provide ALS services, and more than 79 percent supported ALS engine companies as a means to provide the ALS services. The Command staff recognized the existing ALS system for the base was not acceptable and may only get worse due to the current growth of both the base and the surrounding counties. The Command staff supported fire department ALS engine companies as long as the funding requirements can be satisfied. Based on the support of the Command staff and the fire and emergency service personnel, it appears appropriate to begin the planning process for ALS engine companies within the MCB Fire & Emergency Services Division.

The data from the MCB Quantico Fire & Emergency Services Division questionnaire indicated strong support for ALS engine companies across all demographic areas surveyed. In fact, only four respondents at the Fire Fighter rank did not support the fire department providing ALS services. On an individual basis, over 58 percent of the respondents indicated they would be willing to undergoing the necessary ALS training and provide ALS services if an ALS engine company program was approved. However, a significant relationship was found between the willingness to undergo the ALS training and provide the ALS services and the experience of the respondents. Personnel with more experience, especially for personnel with more ten years of experience, were less willing to undergo the ALS training and provide the ALS services. This

relationship was not surprising given the substantial change in working conditions required to provide ALS services. It was an indication that significant change will be more difficult for personnel who have been in an existing system for an extended period of time. It also may indicate that personnel entering the MCB Fire & Emergency Services Division within the last ten years were more comfortable with EMS services since they were required to maintain EMT certification and provided first responder EMS services.

The results from MCB Quantico Fire & Emergency Services Division questionnaire indicated that improving the EMS care system was the overriding rationale for supporting ALS engine companies. Over 92 percent of the respondents who supported ALS engine companies identified improved EMS capabilities and improved ALS response times as significant reasons for supporting the ALS engine company program. This was consistent with the survey results from the other U.S. military fire departments in which all the departments surveyed identified improved EMS capabilities and improved ALS response times as positive benefits of the program. The reasons were also consistent with the observations of U.S. Marine Corps Fire Chiefs C.B. Duffy (personal communication, September 27, 1999) and R.B. Wyman (personal communication, September 28, 1999). Finally, Beck (1995), Janis (1997), Morris (1993), Rivard (1996) and Stinnette (1994), all cited improving ALS response times as an important benefit of ALS engine companies.

Over 58 percent of the MCB Quantico Fire & Emergency Services Division respondents indicated that increased compensation and promotional opportunities for ALS providers were reasons for supporting ALS engine companies. These "personal" factors also were identified in the U.S. military fire department survey, although not to the extent indicated by the MCB Quantico personnel. The promotion opportunity rationale was consistent with the article by

Morris (1993), which cited career progression as a benefit of an ALS engine company program. However, both Fletcher (1997) and Morris identified the differential pay for ALS providers as a cost concern. As a result, it will be important to ensure the compensation and promotional requirements are properly addressed and funded before implementing an ALS engine company program.

Increased fire department services was another positive benefit of ALS engine companies based on the MCB Quantico Fire & Emergency Services Division survey. Over 64 percent of the MCB Quantico respondents identified increased services as a positive reason for supporting ALS engine companies. This finding was consistent with the U.S. military fire department survey in which 5 of the 6 fire departments identified increased fire department services as a positive benefit. This finding also closely relates to the increase productivity benefits of ALS engine companies cited by Fletcher (1997), Morris (1993), Rubin (1997) and Stinnette (1994).

Increased EMS skill was the final significant reason for supporting ALS engine companies identified by the MCB Quantico personnel. This was consistent with the findings by Dittmar (1996) and Duffy (personal communication, September 27, 1999). Both stated that fire fighter EMS skills usually improve when working with ALS providers.

Standard staffing for engine companies and increased public visibility were two positive outcomes of ALS engine companies cited repeatedly in the literature review that were not identified in the survey of the MCB Quantico Fire & Emergency Services Division. This was most likely due to the failure of the survey instrument to specifically request this information. Additionally, staffing for the engine companies was already mandated by DoD policy (DoD, 1994) and U.S. Marine Corps policy (Commandant of the Marine Corps, 1997) at four personnel

per engine company. However, the public visibility benefit of ALS engine companies should not be underestimated. Dittmar (1996), Fletcher (1997) and Morris (1993) all cited this benefit in their research on ALS engine companies. Clearly, increased public visibility would be a benefit to an well-organized ALS engine company program at MCB Quantico.

The main reasons given by the survey respondents for not supporting ALS engine companies were compromises to other fire department missions and the lack of an efficient transport capability. However, in the survey of the other U.S. military fire departments providing ALS services, there was no concern for these two factors. While mission compromise may have been an initial concern for the six fire departments operating ALS engines, it did not present a substantial problem once the ALS engine companies were implemented. This was an especially important finding considering only one department obtained additional personnel to start the ALS engine company program (See Appendix D). From this data, it appears that mission compromise concerns for ALS engine companies can be sufficiently addressed in the operation and administration of the program.

The emergency medical transportation issue is a concern at MCB Quantico. The MCB Quantico Command staff acknowledged that the Navy MTF was pushing to turn over the ambulance responsibilities to the MCB Fire & Emergency Services Division (C.L. Scovel, personal communication, October 4, 1999). Also, the EMS Ad Hoc Committee expressed serious concerns with the EMS care through the Navy MTFs (DoD, 1998a). As a result, the MCB Quantico Fire & Emergency Services Division (1999) submitted a proposal to take over the ambulance transport function. While there was no action on the proposal during this research, the transportation issue must be addressed in a positive manner before implementing an ALS engine company program. Dittmar (1996), Morris (1993) and Methvin (personal

communication, September 30, 1999) all identified the transportation issue as a key component in an effective ALS engine company program. In fact, Methvin indicated the MCAGCC Twentynine Palms Fire Department was pursuing an ALS ambulance system in lieu of an ALS engine company program due to concerns with ambulance transports at that installation. MCB Quantico would be well served to address transportation issue before implementing the ALS engine company program. Addressing this issue initially would also help reduce the dual proposal funding concerns expressed by Colonel Scovel.

Increasing fire department costs is another concern that was cited in the MCB Quantico Fire & Emergency Services Division survey, in the survey of the other U.S. military fire departments and in almost all the literature reports. While Beck (1995), Fletcher (1997), Janis (1997), Morris (1993), Rubin (1997) and Thorp (1993) all reported that ALS engine companies were most efficient ALS alternative, the program does involve increases in costs for equipment, training, certification and ALS provider upgrades. This research estimated slightly less than \$80,000 as the first year cost to provide two ALS engine companies at MCB Quantico. This was very consistent with the \$165,000 for four ALS engines estimated by Beck and the \$40,136 average increase for ALS engine companies reported by the International Association of Fire Chiefs (1991) survey. The cost estimate for this research did include an upgrade for six ALS providers, the minimum necessary to start the program (R.M. Harvey, personal communication, October 7, 1999).

Colonel C.L. Scovel (personal communication, October 4, 1999) recommended developing funding alternatives for the ALS engine company cost increases as an important part of an ALS implementation plan. Funding alternatives should include the Headquarters Marine Corps Special Program funds, MCB Quantico Operations funds, cost recovery from the Navy

MTF and Command training funds for the ALS training. While the equipment and training costs can be supported through normal Headquarters Marine Corps or the base operations accounts, the upgrade of the ALS providers will require a program submission through the Marine Corps Program Objective Memorandum process. Since this process takes a minimum of two years, the program increase should be submitted as part of the ALS engine company plan.

The last major concern identified in the MCB Fire & Emergency Services Division survey was the increased training and certification requirement. Five of the 6 U.S. military fire departments surveyed also identified this concern as well as Fletcher (1997), Mestas (1993), Morris (1993), Mothershead (1998) and Rivard (1996). Clearly, an upgrade to the ALS level will require additional training and certification given the substantial increase in ALS care. However, the recommendation by Mothershead to upgrade to the EMT Intermediate level or EMT Cardiac Technician level should be considered, particularly as an introductory option. This option would reduce the classroom training requirement by over 400 hours, reduce the training costs and ease the initial implementation process. Once the program is in place, the need for full paramedics can be re-assessed.

Both Fletcher (1997) and Rivard (1996) noted the long training time necessary to upgrade existing employees to the paramedic level. As a result, Rivard recommended hiring paramedic personnel as a way to offset the training time and costs. While this does offer a cost reduction alternative for MCB Quantico, this option should be carefully evaluated for the start-up of the program. With the 58 percent of the existing MCB Quantico Fire & Emergency Service personnel willing to take the ALS training and provide the ALS services, they should be given the initial opportunity to provide the service. This will help sell the program and increase the productivity of the existing personnel. Fletcher also recommended utilizing existing fire

department personnel to start-up their ALS engine company program as a means to increase productivity. However, if sufficient personnel cannot obtain the ALS certification, then hiring personnel with existing ALS certification should be considered.

One of the key recommendations from the MCB Quantico Fire & Emergency Services Division (1999) Emergency Medical Transport proposal was to obtain an EMS Coordinator position. The coordinator would provide the supervision, coordination and training necessary to implement the EMS transportation program. If the proposal is accepted and the transport function becomes the fire department's responsibility, this position could also provide the services for the ALS engines. However, an EMS Coordinator position would be very beneficial for an ALS engine company program even if the transport proposal is not accepted. The ALS program will require similar if not more coordination, training, budgeting and interface with state and local agencies. The proposal estimated the cost at \$60,000 for the EMS Coordinator position.

Finally, the failure of 24 MCB Quantico Fire & Emergency Service Division personnel to respond to the survey was a concern as well as a limiting factor of this research. While the results from the survey appear very supportive of ALS engines, there was a substantial portion of the Division's personnel whose opinions, concerns and recommendations were not captured. It will be important to try and capture the input of all personnel before implementing an ALS engine company program.

## RECOMMENDATIONS

Due to the strong support for ALS engine companies indicated by both the MCB Quantico Fire & Emergency Services Division personnel and the Command staff, this research recommends starting the planning process for an ALS engine company program. There appears strong commitment by fire and emergency service personnel and the Command to improve the EMS care at MCB Quantico and an ALS engine company program appears feasible. The specific implementation goals and objectives can be addressed through application of the Planning phase of the Change Management Model (U.S. Fire Administration, 1996). This research further recommends assignment of the planning task to the MCB Quantico Fire & Emergency Services Division EMS Committee, since they have been extensively involved in this research project and EMS Medical Transport proposal.

The planning process must include a funding plan to address the cost increases of ALS engine companies. This research estimated the cost increase at approximately \$78,000 per year for two ALS engine companies, of which \$26,000 was equipment costs, \$12,000 was training costs and \$40,000 was personnel upgrade costs for providing the ALS services. The funding plan should include all available funding sources including the Headquarters, U.S. Marine Corps Special Program funds, MCB Quantico Base Operations Support funds, cost recovery from the Navy MTF and MCB Quantico Command training funds. The funding plan must address the personnel upgrades for the ALS providers, since the upgrades will require a program submission through the U.S. Marine Corps Program Objective Memorandum process. The program submission should receive rapid attention, since it takes a minimum of two years to work through the budget process.

The EMS transportation issue must be addressed promptly since an effective ambulance transport capability is an important element of an ALS engine company program. If the MCB Quantico Fire & Emergency Services Division (1999) Emergency Medical Transport proposal is approved and the Division assumes the EMS transport function, the ALS engine company program can be effectively integrated with the EMS transport program. This would provide the most cost efficient approach for upgrading the EMS services on MCB Quantico to ALS capability. If the EMS transport proposal is not approved, the MCB Quantico Fire & Emergency Services Division and the Navy MTF will need to develop other alternatives for EMS transportation. In this case, the ALS engine company planning process must address the transport alternatives and the affect on the ALS engine company program.

The research recommends offering the existing MCB Quantico Fire & Emergency Service Division personnel the initial opportunity to take the ALS training and provide the ALS services. While hiring personnel with existing ALS certification will reduce the initial training costs, this action could have the unintended consequence of lowering support for the program by the existing personnel. With 58 percent of the employees willing to undergo the training and provide the ALS service, it is important that they are provided the opportunity for ownership of the program. After the initial training opportunity, hiring personnel with existing ALS certification should be considered for vacant operational positions, especially if there is an insufficient pool of ALS providers within the Division.

The ALS engine company planning process should evaluate the feasibility of initial ALS upgrades to the EMT Intermediate or Cardiac Technician level. This type of upgrade was recommended by Mothershead (1998) for Marine Corps installations in the Beaufort, SC area and may be applicable for MCB Quantico as well. Upgrades to the EMT Intermediate or

Cardiac Technician level would significantly reduce the initial training and costs associated with implementing the ALS engine company program. Once the program is in place and sufficient EMS incident data is available, the need for paramedic ALS providers can be re-evaluated.

The EMS Coordinator position recommended by the MCB Quantico Fire & Emergency Services Division (1999) EMS Medical Transport proposal is also supported by this research. The coordination, training, budgeting and interface with local and state officials will only increase with an ALS program. A full-time position dedicated to the EMS responsibilities will provide the necessary focus to the ALS program. With the potential growth in EMS activity at MCB Quantico, the EMS responsibilities can no longer be assigned as a collateral duty to existing personnel. If the EMS Coordinator position is not approved through the EMS Medical Transport proposal, it should be included in the ALS engine company plan.

Follow-up is recommended with the 24 MCB Quantico Fire & Emergency Division personnel who did not respond to the survey. Because an ALS engine company program will have an affect on all personnel, it is important to try and get input from all the Division personnel. The opinions, concerns and recommendations of all personnel should be evaluated and incorporated into the final ALS engine company plan.

Finally, additional research is recommended on the objective factors affecting an ALS engine company program for MCB Quantico. The research should include a full analysis of existing ALS response times, type and severity of ALS calls, call volumes, non-emergency workloads, EMS protocols, medical direction, mutual aid agreements and other objective factors that affect a fire department ALS engine company program. The objective factors should be evaluated as part of the ALS engine company plan and should be utilized in formulating the implementation strategy.

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## APPENDIX A

### Advanced Life Support Engine Company Questionnaire



**HEADQUARTERS UNITED STATES MARINE CORPS  
FACILITIES AND SERVICES DIVISION  
FIRE PROTECTION PROGRAMS (LFF-1)  
2 Navy Annex  
Washington, DC 20380-1775  
(703)695-9453  
DSN 225-9453**

## MEMORANDUM

TO: Marine Corps Base, Quantico Fire Service Personnel  
FROM: Kevin King, Manager, Fire Protection Programs  
SUBJECT: ADVANCED LIFE SUPPORT ENGINE COMPANY QUESTIONNAIRE  
DATE: 28 June 1999

Please find attached the subject questionnaire on Advanced Life Support (ALS) engine companies at the Marine Corps Base (MCB) Quantico. This analysis is being performed to study the feasibility of ALS engine companies at MCB Quantico and to satisfy one of my applied research requirements for the Executive Fire Officer Program at the National Fire Academy. The questionnaire is intended for your individual assessment of an ALS engine company program operated by the MCB Quantico Fire Department. Please answer the questions based on your own beliefs and experiences and not based on the opinions of other personnel. You are not required to provide your name on the questionnaire, although your individual comments are encouraged at the end of the questionnaire.

Please complete the questionnaire as promptly as possible and return to your Fire Chief no later than 12 July 1999. The Fire Chief will forward the responses to me for use in the analysis. When completed, I will provide a copy of the research report for your review and information.

I thank you for your attention and support for this project. If you have any questions, please do not hesitate to contact me at the above phone numbers.

## MARINE CORPS BASE QUANTICO FIRE DEPARTMENT

## ADVANCED LIFE SUPPORT (ALS) ENGINE COMPANY QUESTIONNAIRE

1. Current rank in the MCB Quantico Fire Department:

\_\_\_\_\_ Firefighter  
\_\_\_\_\_ Driver/Operator  
\_\_\_\_\_ Lead Firefighter (Crew Chief)  
\_\_\_\_\_ Chief Officer

2. Experience (total service in the MCB Quantico Fire Department)

\_\_\_\_\_ Less than 1 year  
\_\_\_\_\_ 1 to 5 years  
\_\_\_\_\_ 5 to 10 years  
\_\_\_\_\_ 10 to 20 years  
\_\_\_\_\_ More than 20 years

3. Emergency Medical Service training:

\_\_\_\_\_ None  
\_\_\_\_\_ First Responder  
\_\_\_\_\_ Emergency Medical Technician  
\_\_\_\_\_ Cardiac Technician  
\_\_\_\_\_ Paramedic

4. Do you believe the current emergency medical service system for MCB Quantico (Basic Life Support from the Navy Corpsman and mutual aid Advanced Life Support) is acceptable?

\_\_\_\_\_ Yes \_\_\_\_\_ No

5. Do you believe the MCB Quantico Fire Department should provide ALS services for the installation?

\_\_\_\_\_ Yes \_\_\_\_\_ No

6. Would you support ALS engine companies as a means to provide ALS services to MCB Quantico?

\_\_\_\_\_ Yes \_\_\_\_\_ No

7. If you answered yes to question 6, why do you believe the fire department should provide ALS engine company services? Please check all that apply. (If you answered no to question 6, go to question 8.)

- ☐ Improve emergency medical service capabilities
  - ☐ Improve ALS response times
  - ☐ Increase fire department services
  - ☐ Increase compensation for fire fighter/paramedics/cardiac technicians
  - ☐ Increase promotional opportunities for fire fighter/paramedics/cardiac technicians
  - ☐ Increase individual emergency medical service skills
  - ☐ Other (please list)
- 
- 

8. If you answered no to question 6, why don't you believe the fire department should provide ALS engine company services? Please check all that apply. (If you answered yes to question 6, go to question 9.)

- ☐ Existing emergency medical service capabilities acceptable
  - ☐ Compromise other fire department missions
  - ☐ Increase fire department costs
  - ☐ Increase training and certification requirements
  - ☐ Increase call volume and on-scene times
  - ☐ Not the fire department's responsibility
  - ☐ No efficient transport capability
  - ☐ Other (please list)
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- 

9. Would you be willing to undergo paramedic/cardiac technician training and provide ALS services if an ALS engine company program was implemented for MCB Quantico?

☐ Yes ☐ No

10. Other Comments:

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**APPENDIX B****Advanced Life Support (ALS) Questionnaire**

**HEADQUARTERS  
MARINE CORPS  
FACILITIES AND**

**UNITED STATES**

**SERVICES DIVISION**

**FIRE PROTECTION PROGRAMS (LFF-1)**

**2 Navy Annex**

**Washington, DC 20380-1775**

**(703)695-9453**

**DSN 225-9453**

# **MEMORANDUM**

**TO:** DoD Fire & Emergency Service Departments  
**FROM:** Kevin King, Manager, Fire Protection Programs  
**SUBJECT:** ADVANCED LIFE SUPPORT QUESTIONNAIRE  
**DATE:** 16 July 1999

Please find attached the subject questionnaire that will be used to evaluate the feasibility of an Advance Life Support (ALS) engine company program. The evaluation is also being performed to satisfy one of my applied research requirements for the Executive Fire Officer Program at the National Fire Academy. As part of the research, we want to determine the experiences, both positive and negative, of other military fire and emergency services departments that provide ALS services. Since you have indicated some previous experience with ALS services, we want to capture your experiences and compare your experiences with the experiences of other military departments. Please answer the questions based on your department's experience with ALS services.

Please feel free to e-mail me the completed survey at [KingTK@hqmc.usmc.mil](mailto:KingTK@hqmc.usmc.mil) or send the survey to me at the address listed above.

I thank you for your attention and support for this research project. If you have any questions, please do not hesitate to contact me at the above phone numbers.

## DoD Fire & Emergency Services Departments Advanced Life Support (ALS) Questionnaire

1. Name of your department: \_\_\_\_\_

2. Number of personnel in your department: \_\_\_\_\_

3. Number of fully staffed companies in your department: \_\_\_\_\_

4. Number of ALS providers in your department: \_\_\_\_\_

5. What type of ALS services does your department provide?

\_\_\_\_\_ Ambulance/Medic based  
 \_\_\_\_\_ Engine Company based  
 \_\_\_\_\_ Other

6. Number of companies that provide the ALS services:

\_\_\_\_\_

7. Did your department obtain additional personnel in order to provide the ALS services?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, how many additional personnel did you obtain to provide the ALS services?

\_\_\_\_\_

8. What is the approximate annual cost to provide the ALS services?

\_\_\_\_\_

9. Why did you start a fire department based ALS program? Please check all that apply.

\_\_\_\_\_ Improve emergency medical service capabilities  
 \_\_\_\_\_ Improve ALS response times  
 \_\_\_\_\_ Increase fire department services  
 \_\_\_\_\_ Directed by higher Command authority  
 \_\_\_\_\_ Increase compensation for fire fighter/paramedics/cardiac technicians  
 \_\_\_\_\_ Increase promotional opportunities for fire fighter/paramedics/cardiac technicians  
 \_\_\_\_\_ Other (please list)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. What are the positive benefits of your fire department based ALS program? Please check all that apply.

- ☐ Improved emergency medical service capabilities
- ☐ Improved ALS response times
- ☐ Increased fire department services
- ☐ Increased compensation for fire fighter/paramedics/cardiac technicians
- ☐ Increased promotional opportunities for fire fighter/paramedics/cardiac technicians
- ☐ Increased morale of fire department personnel
- ☐ Improved relations with higher Command authority
- ☐ Other (please list)

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11. What are the negative outcomes of your fire department based ALS program? Please check all that apply.

- ☐ Compromised other fire department missions
- ☐ Increased fire department costs
- ☐ Increased training and certification requirements
- ☐ Increased call volume and on-scene times
- ☐ No efficient transport capability to support ALS
- ☐ Lack of support by fire department personnel
- ☐ Union/labor issues or grievances
- ☐ Medical control problems
- ☐ Other (please list)

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12. Does your department policy include any limitations in providing ALS services? If yes, please list.

☐ Yes ☐ No

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13. Overall, do you believe your fire department based ALS program has provided a positive benefit to the installation and the department?

☐ Yes ☐ No

## 14. Other Comments:

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## **APPENDIX C**

### **Respondent Comments from the Advanced Life Support Engine Company Questionnaire**

The following comments from the respondents were included on the Other Comments section of the Advanced Life Support Engine Company Questionnaire. They have been edited for spelling, but have not been edited for content.

I would like to see a way that if an ALS provider suffers burn out, that he can go back to BLS and not lose his job due to the ALS being added into his P. D. I would like to see an EMS Supervisor made. Would like to see additional staffing be made for EMS responses to run ambulances.

Would be willing to take cardiac technician training provided that: (1) Training be done on government time or comp. time granted; (2) All people having this training get GS-7 pay or a \$2500 per year pay adjustment; (3) All continuing education required for this training be on government time or comp. time granted.

Limited space for equipment.

I believe EMS to be job security in this day and age. I believe the current system to be inadequate and does not provide the level of care needed on this installation. We should not have to rely on mutual aid for ALS services (or BLS).

I personally am not interested in the EMS field. I'm worried that if I'm "supervisory" that I'm not going to be able to do my job to "supervise", plus there is a possibility that I may not be able to apply for the next step in my career ladder. I think they should rework our rank/structure so that wouldn't be a problem for all persons.

Training requirements are a concern. Two year re-cert for ALS plus in-service requirements could draw down service to the point of going out of service for 24-72 hours at a time, plus the clinical time for initial training and certification.

If ALS services are needed, then hire the personnel to do it.

I feel that MCB Quantico Fire Dept. would do a good job providing ALS for the base, but my concern is when you start taking fire fighters, drivers, etc., off the apparatus to provide ALS for a basic unit you are compromising the Marine Corps Order of manning levels (4 people per emergency vehicle w/ exception of the heavy squad). If we do that and there comes a time to either cut manning or contract in government, they may say "if you can run a 3 "man" engine/truck company for 2-4 hours (average transport time), you can do it all the time." You also may want to check with NSWC Indian Head. Talk with Jay Thompson (Chief) of the base fire department and see how they've done it (taking over basic ambulance & providing ALS).

Any improvement to the existing emergency medical service will be a benefit to the patient and the Quantico community as a whole. Reduce the need to call for outside agency support – pulling resources from agencies that can not really afford it.

This would be a good issue to pursue. But with building a full staff of ALS transport to finish out an ALS call, then it won't be worth while.

I would agree to No. 9 as long as there was compensation for the personnel holding ALS certification.

If properly funded and maintained, the ALS at Quantico system would function well. After seeing the advent of EMT and BLS at this station becoming a reality, this is a logical transition, but the dept. must not have it thrust down its throat. Proper training and support must be funded with the new system, as critical care is not a haphazard business. The doing away with one level of the pyramid (i.e. Navy rescue) will be advantageous and effectively remove duplication on the scene thus benefiting the critical care patient and saving valuable time in the golden hour. Also, we here at Quantico face the same nationwide problem of abuse of the EMS system for non-emergency calls and a public education program concerning what constitutes an emergency would be beneficial as taxi rides will bankrupt the system.

I believe that we should do everything possible to provide the best in emergency services. If the Marine Corps desires for the Marine Corps Fire Service to assume these increasing roles of providing emergency medical services, then the Corps should be willing to adequately fund, man, equip and maintain those increased services. Whatever is decided, I will whole-heartedly support and work to fulfill and duties handed to us.

I believe the base should hire separate personnel for the ALS services and let it be a branch of the fire dept.

To question #9, will we have a choice?

Step increases for paramedics or cardiacs. (Engines) equipment that will accommodate the new equipment needed for ALS services.

This would be good for the dept. if we can get some more manpower and the funding for the supplies.

I feel this would be a great asset to the base. Also, this would provide additional funding and training. It is very hard to wait 15 minutes for ALS service when your patient is in need of immediate care.

A move to have ALS coverage by QFD would be an asset toward job security and further rule out being contracted out in the near future. This would also decrease the amount of downtime we currently have by allowing us to do other things to get out of the station. I have personally for the last several years wanted to attend an ALS training class, but time I had to take such classes was limited.

Needs a lot more study.

## APPENDIX D

### Demographics of DoD Fire & Emergency Services Respondents to ALS Questionnaire

Fire Department	Fort	NAB Little	Naval Station
	Rucker	Creek	Norfolk
Number of Personnel	241	33	120
Number of Staffed Companies	22	2	13
Number of ALS Providers	7	3	32
Number of ALS Companies	1	2	7
Ambulance Based ALS	No	No	No
Engine Company ALS	Yes	Yes	Yes
Other ALS	No	No	No
Number of Additional Personnel for ALS	0	0	0
Annual Cost for ALS	—	\$3000 for start-up	\$15000 to \$20,000
ALS Policy Limitations	No	Yes	Yes
ALS Provided Positive Benefit	Yes	Yes	Yes

### Demographics of DoD Fire & Emergency Services Respondents to ALS Questionnaire

Fire Department	MCAS	MCRD	Naval Station
	Yuma	Parris Island	Mayport
Number of Personnel	31	42	59
Number of Staffed Companies	2	2	5
Number of ALS Providers	4	9	6
Number of ALS Companies	1 or 2	2	2
Ambulance Based ALS	Yes	Yes	Yes
Engine Company ALS	Yes	Yes	Yes
Other ALS	No	No	No
Number of Additional Personnel for ALS	0	0	6
Annual Cost for ALS	\$10,000.	1 GS upgrade	\$200,000
	\$24,000 for	for	
	start-up	paramedics	
ALS Policy Limitations	Yes	No	No
ALS Provided Positive Benefit	Yes	Yes	Yes